REMARKS/ARGUMENTS

The Office Action dated September 15, 2008 has been received and reviewed. This response is directed to that action.

Claim Rejections 35 USC § 112

The Examiner states that Claims 5 misses an antecedent basis for the "actuation disc (22). Corrections have been made and these rejections are overcome.

Claim Rejections 35 USC § 102

The Examiner rejected Claims 1, 3 and 6 as being anticipated by Bihusch, German Patent Application DE 41 10 015 A1.

As was previously pointed out, Bihusch discloses a moveable disc which is mounted on springs. Four strain gauges underneath the measure the force of the user's hand lying on the disc. This disc is utilized in the context of a keyless computer mouse for controlling a mouse pointer. Unlike the actual application, the teaching of his reference does not allow for selecting a function or even for data input and is not suitable for any direct selection. Therefore this citation does neither disclose a user interface (stick marks etc.). The control element described in this reference can not be rotated mechanically and it cannot recognize a circular movement with variable speed. Further, the control element of Bihusch teaches, unlike the subject matter of the present application, not points on a circular track, but points on a plane. Accordingly, a circular motion of the control element in Bihusch cannot be converted into a circular motion of the cursor.

Thus, Bihush does not anticipate the invention as claimed d in the amended claims.

Claim Rejections 35 USC § 103

The Examiner rejected claims 12-13 and 19 as being obvious over Bihusch in view of Kehlstadt et al., US Patent 6,879,316.

The Examiner rejected claims 2, 4-5 and 7-9 as being unpatenable over Bihush in

view of Goldenberg et al., US 6,636,197.

The Examiner rejected claims 14-15, and 17 as being unpatenable over Bihusch in view of Kehlstadt as applied to claims 19 and 13, and further in view of Goldenberg

The Examiner rejected claim 18 as being unpatenable over Bihusch in view of Kehlstadt as applied to claim 13 and further in view of Goren, US Patent 7,190,351.

The Examiner rejected claim 10 as being unpatenable over Bihusch in view of Nuovo et al., US Design 490,405 S.

The Examiner rejected claim 11 as being unpatenable over Bihusch in view of Lee et al. US 6,804,027.

Concerning Bihusch in combination with Kelstadt, applicant submits that the rejection Bihusch, applicant submits that Bihush does not allow for selecting a function or even for data input and is not suitable for any direct selection. Kelstedt discloses a computer mouse with two force sensing keys on the basis of force sensing resistors (rsR). These only allow scrolling, the user regulates the scrolling speed by varying the force applied on the key. Thus, the sensor keys described in Kehlstadt are not mechanically rotatable. Such application cannot detect a circular movement initiated by a user on the key, far less can it recognize a circular movement of variable speed.

Concerning Bihusch in combination with Goldenberg, Applicant submits that Goldenberg describes a method for generating a haptic feedback to the user when actuating a control knob, which may be rotated, pressed downward and pushed sidewards towards eight directions, whereby functions are activated or menus changed. The functionality of Goldenberg is based on a select switch 88 and sensors, detecting the direction to which the knob is pushed. Thus, Goldenberg provides a complex mechanic construction (see fig. 2). The operation of the knob being fundamentally different from the operation of a disc in that the knob cannot be operated easily. Therefore knobs are not widely used in mobile electronic devices. In addition, the knob taught by Goldenberg is not tiltable. For operation, it has to be grasped on its side with one's thumb and index finger in order to be rotated, pressed downwards and pushed sidewards. In contrast, Applicant's disc as claimed is operated with a

circular movement of one finger on its upper side. The user has thus enough fingers free for holding the device with his or her operating hand.

The examiner argues that Bihusch in combination with Goldenberg would disclosed the subject of claims 1, 3 and 6 of the actual application. Applicant respectfully disagrees. Goldenberg describes a joystick for controlling a pointer of a mouse. The functionality of this is based on the arrangement shown in fig. 10 and 11: Four strain gauges measure the force applied upon the springs, when the user presses onto the disc-like, swingplate".

Strain gauges are very sensitive to force (they can detect movements in a range of micrometers), but they capture the position of actuation only at one of the four positions on the disc where they are mounted. The citation Bihush would thus measure relative modifications like circular movements of the user's finger on the disc only in a resolution of four steps, i.e. based on 360 degrees with an inaccuracy of 90 degrees. Therefore, menu selection or data input, as shown in fig. 9 and fig. 10 of the actual application, is neither intended nor possible. See also the description of the prior art in the actual application and fig. 12, 4th column.

Only the actual application discloses an arrangement that measures the tilt of the disc and a method for identifying the position of the user's finger in order to analyze circular movements on the disc. Furthermore and in contrast to the subject-matter of the actual application, the accuracy of position detection provided by the subject-matter of Goldenberg is not sufficient for the disc to be operated like a key block. Goldenberg does not allow for selecting and activating functions. For that, additional keys would have to be integrated. Therefore the combination of Bihush and Goldenberg does not disclose the subject-matter of claim 1 of the actual application.

Concerning claim 3, Goldenberg indeed describes a disc-shaped control element. But since its functionality is based on four strain gauges, which measure the force applied on springs, its resolution is too rough (four directions), so that it does not allow for selecting and directly activating functions as described in the actual application. Therefore the dependent claim 3 of the actual application is not disclosed by Bihush.

Concerning claim 6, Goldenberg indeed describes a disc-shaped control element with a smooth surface. But Goldenberg does not allow for selecting and directly activating functions as described in the actual application. Therefore the combination of Bihush and Goldenberg does not disclose the subject-matter of claim 1 of the actual application.

Concerning claims 12, Applicant submits that new claim 19 which replaces claim 12 describes a method for sensor operation, which allows the detection of circular movements of the user's finger on a disc. However, neither Bihusch nor Kelhstadt have the ability to detect rotating movements. An evaluation of circular movements would neither be possible, if the strain gauges of Bihusch were replaced by the FSR of Kehstadt , as the examiner argues. FSR keys instead of the strain gauges would capture the force applied when the user presses onto the disc-shaped swing-plate only at one of the four positions where the four FSR would have been mounted. Even with the sensor technology described in Kehlstadt , Bihusch would therefore allow for measuring relative modifications of the position and hence for circular movements of the user's finger on the disc only in a resolution of four steps.

Both Bihush and Kehstadt describe an additional device needed for cursor control, namely a computer mouse and a joystick, respectively. Such additional devices on the basis of strain gauges or FSR are described in the actual application as prior art (see also fig. 12, 1st column). The subject of the actual application makes such additional control elements redundant, because it allows for detecting a rotary movement steplessly. If this were tought was part of the prior art Bihusch and Kehlstadt would have to detect a rotary movement. This is not the case. Therefore, the dependent claim 12 of the actual application is not obvious over the combination of "Bihusch and Kehlstadt.

Concerning claim 13, Applicant submits that Bihusch indeed mentions the possibility to influence the speed of the mouse pointer. But Lhe direction of movement can be detected by the subject of Bihusch only with an accuracy of four segments of a circle (see the arrangement of the four strain gauges underneath the swing-platte in "fig. re No. 10"). By contrast, the actual application describes a method for detecting the exact position and the force of the actuation by measuring the tilt of the control element steplessly, no matter where the disc is pressed (see tables in fig. 12 and fig. 13). Therefore, the speed of the requested

cursor movement may be controlled in high-resolution in any direction. Bihusch does hence not disclose the dependent claim 13 of the actual application.

Concerning claim 16, Applicant submits that in contrast to the subject of the actual application, the strain gauges of Bihusch do not allow for detecting a circular movement steplessly by measuring the tilt of the axis of the swingplate. They allow for measuring the force only at one of the four positions, where the four strain gauges are mounted. The dependent claim 16 of the actual application is therefore not disclosed by Bihusch.

Concerning claims 2, 4-5 and 7-9, the examiner asserts that Bihusch in combination with Goldenberg would disclose the dependent claims 2, 4-5 and 7-9 . Applicant respectfully disagreea.

Concerning claim 2, applicant submits that even if the control element described in Bihusch was integrated in a housing as described in Goldenberg , this combination would only allow for function selection or activation with an additional key. The dependent claim 2 of the actual application is therefore not obvious by such a combination.

Concerning claim 4, applicant submits that even if the upper cap 26 of the knob described in Godenberg, mounted onto the swingplatte described in Bihusch would not allow for selecting and activating a function as long as the invention is based on strain gauges. According to the teachings of Goldenberg, direct activation of a function or direct selection of data would only be possible at additional mechanical expenses (see fig. 2) and with a sideward deflection of the knob towards a restricted number of directions. The direct selection of functions of Goldenberg is based on an mechanically costly arrangement of a select switch 88, slots 101 and keys 103, (see also col. 8, 1. 8-15), whereby not particularly described sensors measure the direction towards which the knob is pushed. Therefore a deflection of the knob directly leads to the activation of the corresponding function or the corresponding menu entry. By contrast, the construction of the disc of the actual application allows for separating selection and activation, and hence, also allows for correcting a selection before the activation.

Above all, the operation of cap 26 as disclosed in Goldenberg is fundamentally different from the disc disclosed in the actual application, because its operation affords using several fingers. It's operation (rotation, horizontal deflection and vertical press) affords grasping it with one's thumb and index finger. By contrast, the disc described in the actual application is operated by a circular movement with only one Finger on the upper side of the disc. The user has thus enough fingers free for holding the device with his or her operating hand. The dependant claim 2 of the actual application is therefore not disclosed by a combination of Bihusch in combination with Goldenberg.

Concerning claim 5 , applicant submits that in contrast to the present invention, the knob described in Goldenberg affords not only one transmission element 82. The transmission disclosed by Goldenberg would for instance not work without the encoder drive belt 92, the encoder pulley disk 94 and the top slider 98.

The presently claimed invention on the other hand needs only one transmission element 26 in order to transmit the mechanical rotary movement to the control element 11. The additional feature of the dependent claim 5 of the actual application is therefore not disclosed in Goldenberg.

Concerning claim 7, applicant submits that since the knob described in Goldenberg is grasped at its side with one's thumb and index finger, the texture of its surface is different to the one disclosed in the actual application, i.e. it only makes sense to be arranged at its side. The disc disclosed in the actual application is in contrast operated with a circular movement of one's finger. Hence, the texture is arranged at its upper side. The additional feature of the dependent claim 7 of the actual application is therefore not made obvious by Goldenberg.

Concerning claim 8, applicant submits that since the knob described in Goldenberg is grasped at its side with one's thumb and index finger, its height complies at least with the width of a finger. By contrast, the actuation disc 24 of the actual invention is flat. The additional feature of the dependent claim 8 of the actual application is therefore not disclosed in Goldenberg.

Concerning claim 9, applicant submits that in the presently claimed actual invention,

the actuation disc is rotated, while the control element itself is not. The control element is tilted according to the position and the force of the user's finger, actuating the actuation disc.

In contrast, the knob 26 disclosed in Goldenberg is not rotated alone. The whole control element is rotated, including its pertaining components. The additional feature of the dependent claim 9 of the actual application is therefore not disclosed in Goldenberg.

Concerning claims 14-15 and 17 , applicant submits that the examiner proceeds on the assumption that Bihusch combined with Kehlstadt disclosed claim 12 of the actual application, and that further combined with Goldenberg, the dependent claims 14-15 and 17 of the actual application were disclosed, too. Applicant respectfully disagrees.

Concerning claim 14, applicant submits that firstly, Bihusch combined with Kehstadt does not render obvious claim 12 as explained above. Secondly, unlike the subject described in the present application, merely tapping onto the control element disclosed in Goldenberg , does not lead to highlighting a menu entry or data. Goldenberg does not describe that a sideward deflection of the knob towards one of the eight possible directions leads to a highlighting on the display. Goldenberg describes such highlighting only as a result of a rotary movement, with which the user navigates a menu. The highlighting on the display is provided only as a feedback to the user in order to facilitate his or her orientation during navigation. But if the user pushes the knob towards one of the eight possible directions, the function assigned to the selected direction is activated independently from the position of the cursor on the display. At this stage Goldenberg does not allow for a correction.

Furthermore, if the user intends to activate a highlighted entry, he or she has to press the knob in the middle in order to close the select switch 88 similarly to pressing a mouse button, and in the pressed state he or she also pushes the knob towards one of the given directions if applicable. Due to the complexity of the succession of these distinct movements (rotary movement, thumb and index finger grasping the side of the knob; releasing the knob; pressing it on the middle of its upper side; pushing the knob towards one of eight possible directions again with thumb and index finger), this method is prone to errors, especially in mobile use.

In contrast, claim 14 of the actual application discloses that a menu entry is highlighted by a cursor when a force is applied onto the actuation disc, but activated only when the user lifts his or her finger from the disc. The positions of the single menu entries correspond to the positions of actuation on the disc (see fig. 9 and breaks 66 and 67). This is not the case with the teachings of Goldenberg. The dependent claim 14 of the actual application is therefore not disclosed by the method of Goldengerg applied to a combination of Bihusch and Kehlstadt.

Concerning claim 15 , applicant submits that according to the method for text input disclosed in Goldenberg, a displayed. character is selected by rotating the knob, whereby the currently selected character is highlighted with a cursor. It is entered by pressing the knob, whereby the select switch 88 is to be pressed similarly to a mouse button.

The present application discloses, that the actuation disc need not be rotated in order to move the cursor onto one of the displayed characters. Tapping onto the edge of the actuation disc directly leads to highlighting a character on the display. Its position within the arrangement of the characters on the display corresponds to the position of actuation on the disc.

Only the actual application further allows for correcting the selection even after actuating the edge of the upper side of the control element, since the character is not entered before the user lifts his or her finger. If the user wishes to modify the selection, he or she only needs to move the finger on the disc towards the desired character. The dependent claim 15 of the actual application is therefore not rendered obvious over the method of Goldenberg applied to a combination of Bihuch and Kehstadt.

Concerning claim 17, applicant submits, as shown above, only the actual application allows for a correction of the selected character even after having tapped onto the edge of the upper side of the control element, since the character is not entered before the user lifts his or her finger. If the user wishes to change the selection, he or she only has to move the finger on the disc towards the desired character. The dependent claim 17 of the actual application is therefore not disclosed by the method of Goldenberg applied to a combination of Bihush and Kehstadt.

Concerning claim 18, the examiner proceeds on the assumption that Bihusch would disclose claim 1 of the actual application. He further argues that one of ordinary skills knowing Goren would be able to invent the subject disclosed in claim 18 of the actual application. Applicant respectfully disagrees.

With an arrangement of letters on the display as described in Goren, the user of the joystick taught in Bihusch would indeed be able to move a cursor over the letters. However, neither Bihusch nor Kehstedt describe a cursor at all.

Furthermore and in contrast to the actual application, a control element as being disclosed in Bihusch does not allow a direct input of a character by actuating the edge of the disc. Each input rather affords at least two steps. In the actual application, the allocation of the individual letters on the display correspond to the position of actuation on the display, to which these letters are assigned to. Thus, the actuation disc may be actuated like a key block, i.e. each character may be directly entered with a single actuation (tap and lift) of the edge of the disc. Therefore a combination of Bihusch and Goren do not disclose claim 18 of the actual application.

Concerning claim 10, the examiner proceeds on the assumption that Kehlstedt would disclose claim 1 of the actual application. He further argues that one of ordinary skills knowing Nuovo would be able to invent the subject disclosed in the dependent claim 10 of the actual application. Applicant respectfully disagree.

Designing the joystick disclosed in Bihusch with a design described in Nuovo would not extend the functionality of this joystick. Above all, such a design would not allow for direct selection or character input by directly actuating the edge of the upper side of the disc as allowed with the actual application. The joystick of Bihusch is merely used for navigation. Therefore tick marks on the actuation disc would bring no advantage for operating the device. By contrast, the tick marks on the disc disclosed in the actual application ease its operation, because they indicate key positions. Therefore a combination of Bihusch and Nuovo does not render obvious claim 10 of the present application.

Concerning claim 11, the examiner proceeds on the assumption that Bihusch would

disclose claim 1 of the actual application. He further argues that one of ordinary skills knowing Lee would be able to invent the subject disclosed in the dependent claim 11 of the actual application. Applicant respectfully disagreea.

Designing the joystick disclosed in Bihusch as described in Lee would not extend the functionality of this joystick. Above all, such a design would not allow for direct selection or character input by directly actuating the edge of the disc as possible with the actual application. The joystick of Bihusch is merely used for navigation. Tick marks on the appliance casing would not be advantageous for operating the device. By contrast, the tick marks on the casing disclosed in the actual application ease its operation, because they indicate key positions. Therefore a combination of Bihusch and Lee does not render obvious claim 11 of the actual application.

Thus, applicant submits that the claims as amended are neither anticipated or rendered obvious by the references cited.

Respectfully submitted,

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